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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/932,580	08/17/2001	Scott Ashkenasz	KT-1040A	3952

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DAFFER MCDANEIL LLP
P.O. BOX 684908
AUSTIN, TX 78768

EXAMINER	
GARLAND, STEVEN R	
ART UNIT	**PAPER NUMBER**
2125	

DATE MAILED: 03/20/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/932,580	ASHKENASZ ET AL.	
	Examiner	Art Unit	
	Steven R. Garland	2125	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11/9/06*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-13* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *1-6* is/are allowed.

6)☒ Claim(s) *7-13* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1-13 are pending.

2. Applicant's priority claim under 35 U.S.C. 119(e) is acknowledged, and applicant is entitled to the benefit of the earlier filed date 8/18/00 of the provisional application 60/226336. Note petition granted 3/2/06, page 2, first full paragraph in regards to benefit claim.

3. In view of the perfected priority claim under 35 U.S.C. 119(e), the rejections in view of Dougan et al. 6,884,639 and Kessel et al. 2002/0118365 are withdrawn. The instant application now has an effective filing date prior to these references.

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 7-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Abraham et al. 6,420,864 in view of Rosengaus et al. 6,020,957.

Abraham et al. teaches an apparatus for manufacturing semiconductor devices and teaches use of standardized containers and/or measurement chambers; transfer of wafers; use of a computer, power source, or other device in close proximity to the measurement device or at a distance from the measurement device (col. 6, lines 5-17). Abraham teaches that the use of standardized containers and/or measurement chambers (pods) allows ease in reconfiguring the system by allowing the containers and measurement chambers to be interchanged at a port (interface). (see col. 1, lines 30-37; col.2 , lines 16-27; and claim 5 in regards to the interchange of standardized elements) Abraham also teaches that the use of the standardized components allows ease in replacement of a defective module (col. 2, lines 16-27) and also allows the whole system to remain within given physical size limits (industry standard, col. 6, lines 25-31) Also see the abstract; figures; col. 1, lines 30-52; col. 2, lines 16-27; col. 3, lines 1-13;col. 4, lines 1-12; col. 6, lines 5-67; and the claims.

Abraham however does not specifically apply the system to a wafer fabrication tool, or teach moving wafers between the process chamber and the measurement chamber. Abraham also does not specifically show the connections of power, transfer of data from the pod to a computer. Abraham however does teach the use of a computer system, power supply , etc. can be mounted at some distance away from a pod if required and that it is well known (col. 6, lines 5-17).

It would have been obvious to one of ordinary skill in the art to provide the required connections so that data could be transferred to a computer and power supplied to a pod in view of the express teaching of Abraham. This would allow measurements to be taken at the proper time in response to commands from the computer and the measurement results stored, since the sensor arrangement lacks intelligence.

Rosengaus et al. 6,020,957 teaches a cluster tool having a central transport with wafer processing tools and an inspection system (10 in fig.11) arranged around the transport. Rosengaus teaches that this allows one or more process tools to be monitored (col. 16, lines 39-40 and col. 17, lines 15-23) and also teaches keeping a system at a constant vacuum and having a wafer visit a succession of tools (col. 16, lines 26-31). See figure 11 and col. 16, line 17 to col. 17, line 40. Rosengaus also teaches mounting the inspection system at a port (col. 16, lines 30-34).

It would have been obvious to one of ordinary skill in the art to modify Abraham in view of teachings of Rosengaus so that standardized pods could be used in a cluster tool with wafer processing tools and not just in a measurement system for increased sales, a wider market range, improved process control, ease in reconfiguration, and ease in repair.

Abraham and Rosengaus however do not specifically disclose disconnecting an inspection pod from a first tool, connecting the inspection pod to a different tool and connecting a second pod to the first tool that does not perform an inspection function.

It would have been obvious to one of ordinary skill in the art to modify Abraham . and Rosengaus to disconnect a unique expensive inspection pod that performs an unique inspection from a first cluster tool, connect the inspection pod to a different cluster tool and connect a second pod to the first tool that does not perform an inspection function. This would allow an expensive pod to be shared between cluster tools and at the same time allow continued processing of a larger group of wafers at the first tool.

In response to applicant's arguments about Abraham, Abraham in col. 2, lines 15-27 and claim 5 teaches that both interfaces can be used for either the measurement chamber or substrate container.

Further in response to applicant's arguments, Abraham in col. 1, lines 9-28, provides a motivation for modifying a cluster tool in the form of specifically teaching the desirability of being able to reconfigure the tool as well as repair and maintenance of the tool and then in col. 2, lines 23-27, provides additional motivation in teaching that this allows adaptation in a short time and also allows simplifying repairs.

Also in response to applicant's arguments, while some fabrication processes can require different types of environments not all processes do such as those in which light or temperature (cool down) is controlled. Further what is regarded as a clean environment is relative to the process being performed. A process performed in a chemically pure atmosphere is performed in a clean environment since there are no contaminants but if such an atmosphere occurred in a vacuum process such an atmosphere would be highly contaminated.

Also in response to applicant's arguments, Rosengaus et al. in col. 16, lines 18-40 specifically teaches coupling an inspection system at one of facets of the polygon of a cluster tool having a fabrication process.

7. Claims 12, and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Abraham et al. 6,420,864 in view of Rosengaus et al. 6,020,957 as applied to claims 7-11 above, and further in view of Martin 6,591,162.

Abraham et al. teaches an apparatus for manufacturing semiconductor devices and teaches use of standardized containers and/or measurement chambers; transfer of wafers; use of a computer, power source, or other device in close proximity to the measurement device or at a distance from the measurement device (col. 6, lines 5-17). Abraham teaches that the use of standardized containers and/or measurement chambers (pods) allows ease in reconfiguring the system by allowing the containers and measurement chambers to be interchanged at a port (interface). (see col. 1, lines 30-37; col.2 , lines 16-27; and claim 5 in regards to the interchange of standardized elements) Abraham also teaches that the use of the standardized components allows ease in replacement of a defective module (col. 2, lines 16-27) and also allows the whole system to remain within given physical size limits (industry standard, col. 6, lines 25-31) Also see the abstract; figures; col. 1, lines 30-52; col. 2, lines 16-27; col. 3, lines 1-13;col. 4, lines 1-12; col. 6, lines 5-67; and the claims.

Abraham however does not specifically apply the system to a wafer fabrication tool, or teach moving wafers between the process chamber and the measurement chamber. Abraham also does not specifically show the connections of power, transfer of

data from the pod to a computer. Abraham however does teach the use of a computer system, power supply , etc. can be mounted at some distance away from a pod if required and that it is well known (col. 6, lines 5-17).

It would have been obvious to one of ordinary skill in the art to provide the required connections so that data could be transferred to a computer and power supplied to a pod in view of the express teaching of Abraham. This would allow measurements to be taken at the proper time in response to commands from the computer and the measurement results stored, since the sensor arrangement lacks intelligence.

Rosengaus et al. 6,020,957 teaches a cluster tool having a central transport with wafer processing tools and an inspection system (10 in fig.11) arranged around the transport. Rosengaus teaches that this allows one or more process tools to be monitored (col. 16, lines 39-40 and col. 17, lines 15-23) and also teaches keeping a system at a constant vacuum and having a wafer visit a succession of tools (col. 16, lines 26-31). See figure 11 and col. 16, line 17 to col. 17, line 40. Rosengaus also teaches mounting the inspection system at a port (col. 16, lines 30-34). Note that the successive movement between tools requires coordinated control and also that the inspection device and a processing tool can not operate on the same wafer at the same time and that they are inherently performing separate process operations on a wafer previously presented to the cluster tool.

It would have been obvious to one of ordinary skill in the art to modify Abraham in view of teachings of Rosengaus so that standardized pods could be used in a

cluster tool with wafer processing tools and not just in a measurement system for increased sales, a wider market range, improved process control, ease in reconfiguration, and ease in repair.

Abraham and Rosengaus however do not specifically disclose disconnecting an inspection pod from a first tool, connecting the inspection pod to a different tool and connecting a second pod to the first tool that does not perform an inspection function.

It would have been obvious to one of ordinary skill in the art to modify Abraham . and Rosengaus to disconnect a unique expensive inspection pod that performs an unique inspection from a first cluster tool, connect the inspection pod to a different cluster tool and connect a second pod to the first tool that does not perform an inspection function. This would allow an expensive pod to be shared between cluster tools and at the same time allow continued processing of a larger group of wafers at the first tool.

In response to applicant's arguments about Abraham, Abraham in col. 2, lines 15-27 and claim 5 teaches that both interfaces can be used for either the measurement chamber or substrate container.

Further in response to applicant's arguments, Abraham in col. 1, lines 9-28, provides a motivation for modifying a cluster tool in the form of specifically teaching the desirability of being able to reconfigure the tool as well as repair and maintenance of the tool and then in col. 2, lines 23-27, provides additional motivation in teaching that this allows adaptation in a short time and also allows simplifying repairs.

Also in response to applicant's arguments, while some fabrication processes can require different types of environments not all processes do such as those in which light or temperature (cool down) is controlled. Further what is regarded as a clean environment is relative to the process being performed. A process performed in a chemically pure atmosphere is performed in a clean environment since there are no contaminants but if such an atmosphere occurred in a vacuum process such an atmosphere would be highly contaminated.

Also in response to applicant's arguments, Rosengaus et al. in col. 16, lines 18-40 specifically teaches coupling an inspection system at one of facets of the polygon of a cluster tool having a fabrication process. This provides a clear expectation of success for connecting a measurement chamber to a fabrication tool.

Abraham and Rosengaus however do not teach the use of FOUP, FIMS, or kinematic mounts.

Martin teaches monitoring exchangeable FOUP pods for various conditions such as determining if the interface has sealed properly, etc. ; and also teaches the use of kinematic mounting; SMIF or other standards. See the abstract; figures; col. 1, line 21 to col. 3, line 20; col. 6, lines 29-63; col. 7, lines 9-23.

It would have been obvious to one of ordinary skill in the art to modify Abraham and Rosengaus in view of Martin to use FOUP type pods and use kinematic mounting in view of Martin. This would allow monitoring the interface to insure that the pod interface has sealed, allow ease in mounting the pods, and prevent contamination.

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. Claims 7 and 8 are rejected under 35 U.S.C. 102(b) as being anticipated by Sun 5,940,175 (previously cited).

Sun 5,940,175 teaches mounting a wafer measurement pod 70 (fig.7) having a mechanism for inspecting a wafer (laser/photomultiplier system in fig. 7) to a fabrication tool at a load port 11 of a fabrication tool 116. See fig. 7; col. 6, lines 36-37 and 51-67; col. 9, lines 25-44; and the claims.

10. In regards to claim 1 and its dependent claims upon reconsideration and in view of applicant's arguments the prior art fails to teach or suggest in the claimed combination the specific limitations set forth in the last 6 lines of claim 1 of " causing the specimen handling device to provide to the process diagnostic tool a specimen previously presented to the fabrication station for processing but not undergoing a current operation performed by the processing components of the fabrication station; and coordinating control of process operations performed by the fabrication station and the process diagnostic tool so that they perform separate process operations on different semiconductor specimens previously presented to the fabrication station for processing.".

11. Claims 1-6 are allowed.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Steven R. Garland whose telephone number is 571-272-3741. The examiner can normally be reached on Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Leo Picard can be reached on 571-272-3749. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

SRG

Steven R Garland
Examiner
Art Unit 2125

LEO PICARD
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100